Silhydrite \(3\text{SiO}_2\cdot\text{H}_2\text{O}\)

Crystal Data: Orthorhombic. Point Group: n.d. Microcrystalline grains, to 4 \(\mu\text{m}\), in porous punky masses.

Physical Properties: Fracture: Subconchoidal to irregular. Hardness = 1, in aggregate. 
\(D(\text{meas.}) = 2.141(3)\) \(D(\text{calc.}) = 2.116\) by the rule of Gladstone and Dale.

Optical Properties: Transparent. Color: White; in transmitted light, colorless. Optical Class: Biaxial. \(n = 1.466\) \(2V(\text{meas.}) = \text{n.d.}\)

Cell Data: Space Group: n.d. \(a = 14.519(5)\) \(b = 18.80(1)\) \(c = 15.938(4)\) \(Z = [28]\)

X-ray Powder Pattern: Trinity Center, California, USA. 
14.50 (100), 3.424 (82), 3.143 (35), 3.627 (27), 3.540 (25), 7.31 (22), 7.07 (21)

Chemistry:
\[
\begin{array}{cccc}
\text{SiO}_2 & 88.93 & 90.91 & \text{K}_2\text{O} & 0.01 \\
\text{TiO}_2 & 0.01 & & \text{F} & 0.00 \\
\text{Al}_2\text{O}_3 & 0.01 & & \text{Cl} & 0.01 \\
\text{Fe}_2\text{O}_3 & 0.04 & & \text{H}_2\text{O}^{+} & 3.13 \\
\text{FeO} & 0.02 & & \text{H}_2\text{O}^{-} & 6.65 \\
\text{MnO} & 0.00 & & \text{H}_2\text{O} & 9.09 \\
\text{MgO} & 0.71 & & \text{CO}_2 & 0.07 \\
\text{CaO} & 0.11 & & \text{P}_2\text{O}_5 & 0.00 \\
\text{Na}_2\text{O} & 0.05 & & \text{Total} & 99.75 & 100.00
\end{array}
\]

(1) Trinity Center, California, USA. (2) \(3\text{SiO}_2\cdot\text{H}_2\text{O}\).

Occurrence: Formed by the leaching of sodium from magadiite by near-surface water.

Association: Magadiite.

Distribution: About 10 km east of Trinity Center, Trinity Co., California, USA.

Name: For the SiLica and water of HYDRation in its composition.


References: (1) Gude, A.J., 3rd and R.A. Sheppard (1972) Silhydrite, \(3\text{SiO}_2\cdot\text{H}_2\text{O}\), a new mineral from Trinity County, California. Amer. Mineral., 57, 1053–1065.